AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Withdrawn) A semiconductor device comprising:

a substrate;

a gate insulating film on said substrate, and including one of a nitrogen-containing metal silicate film and a nitrogen-containing metal aluminate film that contains a metal in a peak concentration in a range from one atomic % to thirty atomic % on the uppermost layer; and

a gate electrode on said gate insulating film.

2. (Withdrawn) A semiconductor device comprising:

a substrate;

a gate insulating film on said substrate, and including:

a base interface layer on said substrate,

a metal silicate film on said base interface layer, and containing a metal, oxygen, and silicon, and

a nitrogen-containing metal silicate film that contains a metal, oxygen, silicon, and nitrogen; and

a gate electrode on said gate insulating film, wherein said nitrogen-containing metal silicate film contains said metal in a peak concentration in a range from one atomic % to thirty atomic %.

3. (Withdrawn) The semiconductor device according to claim 2, wherein said metal silicate film contains said metal in a peak concentration in a range from five atomic % to forty atomic %.

4. (Withdrawn) The semiconductor device according to claim 1, wherein said nitrogen-containing metal silicate film contains said nitrogen in a peak concentration in a range from ten atomic % to thirty atomic %.

Claim 5 (Cancelled).

6. (Currently Amended) ~~The~~ A method of manufacturing a semiconductor device ~~according to claim 5~~comprising:

forming a base interface layer on a substrate;

forming a metal silicate film containing a metal in a peak concentration in a range from one atomic % to thirty atomic % on said base interface layer;

forming a nitrogen-containing metal silicate film containing nitrogen in a peak concentration in a range from ten atomic % to thirty atomic % on said metal silicate film; and

forming a gate electrode on said nitrogen-containing metal silicate film, wherein forming said metal silicate film includes, repeatedly:

forming a metal oxide film by supplying a metal-containing material, and then supplying an oxygen-based gas, to said substrate~~; and~~,

forming a silicon oxide film by supplying a silicon-containing material, and then supplying an oxygen-based gas, to said substrate~~;~~, and

~~forming said metal silicate film includes~~ controlling the number of cycles of forming said metal oxide film and forming said silicon oxide film.

7. (Previously Presented) The method of manufacturing a semiconductor device according to claim 6, including repeatedly forming said metal oxide film by:

supplying said metal-containing material to said substrate;

supplying said oxygen-based gas to said substrate; and

radiating the surface of said substrate with light for up to several milliseconds.

8. (Previously Presented) The method of manufacturing a semiconductor device according to claim 6, including repeatedly forming said silicon oxide film by:

supplying said silicon-containing material to said substrate;

supplying said oxygen-based gas to said substrate; and

radiating the surface of said substrate with light for up to several milliseconds.

Claim 9 (Cancelled).

10. (Currently Amended) ~~The~~ A method of manufacturing a semiconductor device ~~according to claim 9~~ comprising:

forming a base interface layer on a substrate;

forming a metal silicate film containing a metal in a peak concentration in a range from five atomic % to forty atomic % on said base interface layer;

forming a nitrogen-containing metal silicate film containing a metal in a peak concentration in a range from one atomic % to thirty atomic % and nitrogen in a peak concentration in a range from ten atomic % to thirty atomic % on said metal silicate film; and

forming a gate electrode on said nitrogen-containing metal silicate film, wherein forming said metal silicate film includes, repeatedly:

forming a metal oxide film by supplying a metal-containing material, and then supplying an oxygen-based gas, to said substrate~~; and~~,

forming a silicon oxide film by supplying a silicon-containing material, and then supplying an oxygen-based gas, to said substrate~~;~~, and

~~forming said metal silicate film includes~~ controlling the number of cycles of forming said metal oxide film and forming said silicon oxide film.

11. (Previously Presented) The method of manufacturing a semiconductor device according to claim 10, including repeatedly forming said metal oxide film by:

supplying said metal-containing material to said substrate;

supplying said oxygen-based gas to said substrate; and

radiating the surface of said substrate with light for up to several milliseconds.

12. (Previously Presented) The method of manufacturing a semiconductor device according to claim 10, including repeatedly forming said silicon oxide film by:

supplying said silicon-containing material to said substrate;

supplying said oxygen-based gas to said substrate; and

radiating the surface of said substrate with light for up to several milliseconds.

13. (Currently Amended) ~~The~~ A method of manufacturing a semiconductor device ~~according to claim 9~~ comprising:

forming a base interface layer on a substrate;

forming a metal silicate film containing a metal in a peak concentration in a range from five atomic % to forty atomic % on said base interface layer;

forming a nitrogen-containing metal silicate film containing a metal in a peak concentration in a range from one atomic % to thirty atomic % and nitrogen in a peak concentration in a range from ten atomic % to thirty atomic % on said metal silicate film; and

forming a gate electrode on said nitrogen-containing metal silicate film, wherein forming said nitrogen-containing metal silicate film comprises:

forming a base metal silicate film containing a metal in a peak concentration in a range from one atomic % to thirty atomic %; and

introducing nitrogen into said base metal silicate film in a peak concentration in a range from ten atomic % to thirty atomic % by nitriding said metal silicate film.

14. (Currently Amended) The method of manufacturing a semiconductor device according to claim 13, wherein forming a base metal silicate film includes:

~~a first step for~~ forming a metal oxide film by supplying a metal-containing material, and then supplying an oxygen-based gas ~~onto~~, to said substrate; and

~~a second step for~~ forming a silicon oxide film by supplying a silicon-containing material, and then supplying an oxygen-based gas ~~onto~~, to said substrate; and

controlling the number of cycles of forming said metal oxide film and forming said silicon oxide film to form said metal silicate film.

15. (Previously Presented) The method of manufacturing a semiconductor device according to claim 14, including repeatedly forming said metal oxide film by:

supplying said metal-containing material to said substrate;

supplying said oxygen-based gas to said substrate; and

radiating the surface of said substrate with light for up to several milliseconds.

16. (Previously Presented) The method of manufacturing a semiconductor device according to claim 14, including repeatedly forming said silicon oxide film by:

supplying said silicon-containing material to said substrate;

supplying said oxygen-based gas to said substrate; and

radiating the surface of said substrate with light for up to several milliseconds.

Claims 17 and 18 (Cancelled).

19. (Currently Amended) A method of forming a high-dielectric-constant film on a substrate comprising sequentially:

supplying a first source gas that contains at least one element of elements constituting a high-dielectric-constant film into a housing where a substrate is located;

after stopping supplying of the first source gas, supplying a second source gas into the housing, the second source gas reacting with said first source gas and forming the high-dielectric-constant film; and

after stopping supplying of the second source gas, heating the surface of the substrate by radiating the surface of the substrate with light for up to several milliseconds.

20. (Previously Presented) The method for forming a high-dielectric-constant film according to claim 19, including radiating the substrate with light for a time in a range of 0.8 to 20 miliseconds.